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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/592,008	01/12/2007	Yoshiaki Wakabayashi	Q97046	7002

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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER	
LEE, BENNY T	

ART UNIT	PAPER NUMBER
2817	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/592,008	WAKABAYASHI ET AL.	
	Examiner	Art Unit	
	Benny Lee	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 September 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 4* is/are rejected.

7)☒ Claim(s) *2,3 and 5-7* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 September 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7 September 2006 & 31 January 2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are: Page 2, line 9, note that "… is solved from the root" should be rephrased for idiomatic clarity. Page 5, line 2, note that "as it is" should be deleted for idiomatic clarity. Page 5, line 5, note that "… like the parasitic inductance" should be rephrased for idiomatic clarity. Page 7, line 9, note that "well controlled to be thin" should be rephrased for idiomatic clarity. Page 10, line 10, note that "is not spoiled" should be rephrased for idiomatic clarity.

The disclosure is objected to because of the following informalities: Page 1, line 12, note that the acronym "LSIs" needs to be strictly defined. Page 2, line 23, note that "Disclosure" should be rewritten as --Summary-- for consistency with PTO guidelines. Page 7, line 15, note that the parameter "S" in the dimension "S/cm" needs to be strictly defined; line 26, note that --, where like elements herein are designated by the same reference numbers as labeled in Fig. 1, and are not further described--. Page 11, line 26, note that "i.e. its technique is not particularly questioned," is vague in meaning and needs clarification. Page 15, line 8, note that reference to "Fig. 3" is not consistent with the drawing numbers therein. Note that the following reference labels need a corresponding description: FIGS. 3B, 3D (31, 32); FIG. 3C, "32"; FIG. 3D (10, 20); FIG. 3E, all reference labels therein. Appropriate correction is required.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the

following is required: The specification needs a corresponding description regarding the claimed recitation in claim 3 in which the characteristic impedance is 1Ω or less.

The following claims have been found to be objectionable for reasons set forth below:

In claim 6, note that the subject matter recited herein already appears in claim 1, thereby rendering this claim as redundant.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furukawa et al in view of Liu et al.

Furukawa et al (e.g. Figs. 6A-6C) discloses a nanotube conductor structure comprising: a first electrode layer (603) upon which a nanotube dimension conductor layer (604) is disposed and a second electrode layer (605) is disposed over the nanotube dimension conductive layer. Note that the above noted conductive electrodes and nanotube conductive layer are disposed on a dielectric substrate (601) of an integrated circuit arrangement and thus the conductive nanotube conductor layer and conductive electrodes function as planar interconnection structures (e.g. microstrip lines) on the integrated circuit arrangement. However, Furukawa et al differs from the

claimed invention in that it lacks a dielectric layer formed between the first electrode and the nanotube conductive layer.

Liu et al discloses a process of forming a nanotube dimension conducting layer including providing a metal substrate (i.e. electrode) layer (11) and then oxidizing the metal substrate to form an oxide (i.e. dielectric) layer (21) on the substrate layer and then forming a nanotube dimension conductor layer (51) on the oxidized metal substrate.

Accordingly, it would have been obvious in view of the references, taken as a whole, to have formed an oxidizing layer on the first electrode layer in Furukawa et al, as taught by Liu et al. Such a modification would have been considered obvious since it would have imparted to the Furukawa et al nanotube structure the advantageous benefit of preventing the metal substrate (i.e. corresponding to the first electrode in Furukawa et al) from reacting with the catalyst in the formation of the nanotube layer (e.g. see column 4, lines 6, 7 in Liu et al) especially since the nanotube layer in Furukawa et al is also formed by a catalyst, thereby suggesting the obviousness of such a modification.

Claims 2, 3, 5-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claim.

Any inquiry concerning this communication should be directed to Benny Lee at telephone number 571 272 1764.

/BENNY LEE/
PRIMARY EXAMINER
ART UNIT 2817

B. Lee